

WHAT WE CLAIM:

1. A method for amplifying a signal comprising:
 - (a) providing a substrate having deposited silver;
 - 5 (b) contacting the substrate having deposited silver with a solution comprising nanoparticles having oligonucleotides bound thereto so as to produce a substrate having a nanoparticles-silver sandwich;
 - (c) washing the substrate having said sandwich; and
 - (d) contacting the substrate having said sandwich with silver ions and a
10 reducing agent to promote silver deposition onto the nanoparticles of said sandwich and produce silver-nanoparticles-silver sandwich.
 - (e) washing the substrate having the silver-nanoparticles-silver sandwich.
2. The method according to claim 1, wherein the nanoparticles comprise gold,
15 silver, platinum or mixtures thereof.
3. The method according to claim 3, wherein the nanoparticles having
oligonucleotides bound thereto comprise gold nanoparticle-oligonucleotide conjugates or
complexes.
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4. The method according to claim 2, wherein the silver ion is derived from a
silver salt comprising silver acetate, silver lactate, or silver nitrate.
5. The method according to claim 1 wherein the reducing agent comprises
25 hydroquinone, n-propyl galate, p-phenylenediamine, or formaldehyde.
6. The method according to claim 1 wherein step (b) contacting is performed
for a period ranging from about 5 to 30 minutes.
- 30 7. The method according to claim 6 wherein step (b) contacting is performed
for about 10 minutes.
8. The method according to claim 1 wherein step (d) contacting is performed
for a period ranging from about 5 to 10 minutes.

9. The method according to claim 8 wherein step (d) contacting is performed for about 5 minutes.

5 10. The method according to claim 1 wherein the deposited silver bound to the substrate is arranged in the form of an array.

11. The method according to claim 1, wherein step (c) washing is performed with water.

10 12. The method according to claim 1, wherein the substrate is glass.

13. A method for promoting silver deposition onto a surface comprising silver, said method comprising the steps of:

- 15 (a) providing a surface having silver bound thereto;
- (b) contacting the surface with a solution comprising nanoparticles having oligonucleotides bound thereto so as to produce a surface having a nanoparticles-silver sandwich ;
- (c) washing the surface having said nanoparticles-silver sandwich;
- 20 (d) contacting the surface having said nanoparticles-silver sandwich with a solution including silver ions under reducing conditions to promote silver deposition onto said nanoparticles of said nanoparticles-silver sandwich; and
- (e) washing the surface having deposited silver.

25 14. The method according to claim 13 wherein said surface comprises cells or tissue.

15. The method according to claim 13, wherein the nanoparticles comprise gold, silver, platinum or combinations thereof.

30 16. The method according to claim 13, wherein the nanoparticles having oligonucleotides bound thereto comprise gold nanoparticles having oligonucleotides bound thereto.

17. The method according to claim 16, wherein the gold nanoparticles having oligonucleotides bound thereto comprise gold nanoparticle- oligonucleotide conjugates or complexes.

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18. The method according to claim 13, wherein the silver ion is derived from a silver salt comprising silver acetate, silver lactate, or silver nitrate.

19. The method according to claim 13 wherein the reducing agent comprising
10 hydroquinone, n-propyl galate, p-phenylenediamine, or formaldehyde.

20. The method according to claim 13 wherein step (b) contacting is performed for a period ranging from about 5 to 30 minutes.

21. The method according to claim 20 wherein step (b) contacting is performed
15 for a period of about 10 minutes.

22. The method according to claim 13 wherein step (d) contacting is performed for a period ranging from about 5 to 10 minutes.

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23. The method according to claim 22 wherein step (d) contacting is performed for about 5 minutes.

24. The method according to claim 13 wherein the silver bound to the substrate
25 are arranged in the form of an array.

25. A kit for signal amplification comprising:
(b) container including nanoparticles having oligonucleotides bound thereto;
(b) container including a silver salt; and
30 (c) container including a reducing agent.

26. The kit according to claim 25, wherein the nanoparticles comprise gold, silver, platinum or combinations thereof.

27. The kit according to claim 26, wherein the nanoparticles comprising gold nanoparticles having oligonucleotides bound thereto.

5 28. The kit according to claim 27, wherein the gold nanoparticles having oligonucleotides bound thereto comprise gold nanoparticle- oligonucleotide conjugates or complexes.

29. The kit according to claim 25, wherein the silver ion is derived from a silver salt comprising silver acetate, silver lactate, or silver nitrate.

30. The kit according to claim 25, wherein the reducing agent comprises hydroquinone, n-propyl galate, p-phenylenediamine, or formaldehyde.